Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE

TRANSACTIONS

OF THE

ROYAL IRISH ACADEMY.

VOLUME XXIII.

PART I.—SCIENCE.

DUBLIN:

PRINTED BY M. H. GILL,

PRINTER TO THE ROYAL IRISH ACADEMY.

SOLD BY HODGES, SMITH, AND CO., DUBLIN,

AND BY T. AND W. BOONE, LONDON.

MDCCCLVI.

CONTENTS.

SCIENCE.

ART. PAGE.

I. *On Galvanometric Deflections producible by Attrition and Contact of Metals under certain circumstances. By* MICHAEL DONOVAN, *Esq., M.R.I.A.* Read January 8, 22, and February 12, 1849. . . . 1

II. *Discussion of Tidal Observations made by direction of the Royal Irish Academy in* 1850–1851. *By the Rev.* SAMUEL HAUGHTON, *M.A., M.R.I.A., &c, Fellow of Trinity College, and Professor of Geology in the University of Dublin.* Read April 24, 1854. 35

III. *On the Physical Conditions involved in the Construction of Artillery, and on some hitherto unexplained Causes of the Destruction of Cannon in Service. By* ROBERT MALLET, *Esq., Mem. Ins. Civ. Eng., M.R.I.A., F.R.S., &c.* Read June 25, 1855. 141

CONTENTS.

SCIENCE.

ART. PAGE.

IV. *On a new Barometric Formula for Mountain Heights, in which the Hygrometric Condition of the Atmosphere is systematically considered.* *By* HENRY LAUS RENNY, *M.R.I.A., Lieutenant, Royal Engineers, Retired List.* Read January 8, 1855. 437

V. *On the Drainage of Haarlem Lake.* *By* SAMUEL DOWNING, *LL.D., M.R.I.A., Professor of Civil Engineering in the University of Dublin.* Read February 12, 1855. 449

VI. *On the Degree of the Surface reciprocal to a given one.* *By* GEORGE SALMON, *D.D., M.R.I.A., Fellow of Trinity College, Dublin.* Read November 30, 1855. 461

VII. *On the Molecular Formation of Crystals.* *By* ROBERT T. FORSTER, *B.A.* Read May 14, 1855. 489

VIII. *Experimental Researches on the Lifting Power of the Electro-Magnet.* Part III. *By* T. R. ROBINSON, *D.D., M.R.I.A., F.R.S., &c., &c.* Read November 30, 1857. 501

IX. *On the Determination of the Intensity of the Earth's Magnetic Force in absolute Measure, by means of the Dip-Circle.* *By* HUMPHREY LLOYD, *D.D., D.C.L., F.R.SS.L. & E.; V.P.R.I.A.; Corresponding Member of the Royal Society of Sciences at Gottingen; Honorary Member of the American Philosophical Society, of the Batavian Society of Sciences, and of the Societè de Physique et d'Histoire Naturelle of Geneva, &c., &c.* Read January 11, 1858. . . 535

ART. PAGE.

X. *The Genus Oldhamia (Forbes): its Character, probable Affinities, modes of Occurrence, and a description of Localities in which it occurs in the Cambrian Rocks of Wicklow and Dublin.* *By* JOHN ROBERT KINAHAN, *M.D., M.R.I.A., Professor of Zoology, Department of Science and Art.* Read April 12, 1858. 547

XI. *On the Lower Palæozoic Rocks of the South-East of Ireland, and their Associated Igneous Rocks.* *By* J. BEETE JUKES, *M.A., F.R.S., M.R.I.A., &c., &c., and the Rev.* PROFESSOR HAUGHTON, *M.A., F.R.S., M.R.I.A.* Read April 26, 1858. 563

XII. *On the Constants of the Barometric Formulæ which make correct allowance for the Hygrometric State of the Atmosphere.* *By* HENRY LAUS RENNY, *M.R.I.A., Lieutenant, Royal Engineers, Retired List.* Read June 14, 1858. 623

POLITE LITERATURE.

I. *On the Personal Pronouns of the Assyrian and other Languages, especially Hebrew.* *By* EDWARD HINCKS, *D.D.* Read June 26, 1854. 3

II. *On Dreams.* *By* JAMES WILLS, *D.D., M.R.I.A.* Read May 28, 1855. 11

III. *On a Tablet in the British Museum, recording, in Cuneatic Characters, an Astronomical Observation; with incidental Remarks on the Assyrian Numerals, Divisions of Time, and Measures of Length.* *By* EDWARD HINCKS, *D.D.* Read November 12, 1855. . . . 31

ANTIQUITIES.

I. *On the Ancient Irish Missal, and its Silver Box, described by Dr. O'Conor in his Catalogue of the Stowe MSS., and now the property of the Earl of Ashburnham.* *By* JAMES HENTHORN TODD, *D.D., F.S.A., President R.I.A.* Read June 23, 1856. 3

SCIENCE.

CONTENTS OF PRECEDING PAPER.

PART FIRST.

THE SOLAR AND LUNAR DIURNAL TIDES ON THE COASTS OF IRELAND.

SECTION.		PAGE.
I.	—Description of the Tidal Stations, and of the Tide-Gauge used in the Observations,	36
II.	—Method of discussing the Daily Observations,	39
III.	—Diurnal Tide at Castletownsend,	45
IV.	—Diurnal Tide at Caherciveen,	50
V.	—Diurnal Tide at Bunown,	60
VI.	—Diurnal Tide at Rathmullan,	67
VII.	—Diurnal Tide at Portrush,	76
VIII.	—Diurnal Tide at Cushendall,	85
IX.	—Diurnal Tide at Donaghadee,	94
X.	—Diurnal Tide at Kingstown,	103
XI.	—Diurnal Tide at Courtown,	111
XII.	—Diurnal Tide at Dunmore East,	119
XIII.	—General Conclusions respecting the Diurnal Tide,	128